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EXAMINER	
PHILPOTT, JUSTIN M	

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/830,752	FURUKAWA, HIROSHI	
	Examiner	Art Unit	
	Justin M. Philpott	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20060921*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed July 11, 2006 have been fully considered but they are not persuasive.

2. First, in response to applicant's statement (at page 9, lines 2-3) that claims 3 and 8 have been "amended to correct antecedent basis problems and to clarify claim language", it is noted herein that the Final Office action of April 19, 2006 did not indicate that there were any problems with antecedent basis or clarity in the previous claim language. While portions of the amendments may clarify some claim language, it appears that the amendments to claims 3 and 8 also broaden their scope by removing limitations.

3. Turning to applicant's arguments, applicant argues (at pages 9-10) that the prior art does not teach an equalization filter as recited in claims 1 and 5 because the technique of Stilwell utilizes a narrow band filter that does not eliminate interference by a filter equalizing spread spectrum signals based on the frequency response of a plurality of channels (e.g., see applicant's remarks at page 10). However, first, Stilwell is not limited to narrow band filters since Stilwell specifically teaches an embodiment which performs the canceling operation in baseband frequencies (e.g., see col. 9, lines 34-40 regarding "The cancelling operation in the alternative embodiment of the present invention can be performed in the IF or bandeband frequencies"). Further, Stilwell teaches the cancelling operation comprises a filter (e.g., see "filter" unit in FIG. 3 receiving signal 202) for equalizing spread spectrum signals (e.g., see col. 8, line 44 regarding "spread spectrum signal 202") based on the frequency response of a plurality of channels (e.g.,

see col. 8, lines 54-57 regarding "composite signal 202 comprises the sum of all of the spread spectrum signals within a particular frequency band from the various transmission sites" and see col. 9, lines 25-29 regarding "filter 226 preferably is used to notch user data out of the Nth despread signal 230, thereby leaving the other spread spectrum user signals in the Nth despread signal minus that portion notched out by the filter 226") which is filtered to eliminate channel distortion (e.g., see col. 5, lines 6-14; see also col. 8, lines 33-35 regarding "interference ... can be cancelled in a particular desired received signal"). Thus, applicant's argument is not persuasive.

4. Additionally, applicant argues (pages 11-12) that H'mimy does not teach limitations in claims 3 and 6-8 directed towards demodulating. However, as recited in the previous Office action, and repeated herein, it is applicant's admitted prior art (AAPA) that is relied upon for these teachings. Specifically, AAPA teaches demodulating independently each of the modulated signals (e.g., via respective independent demodulation units 107-109) which pass through a plurality of the radio channels of which delay times are different, and combining the result (e.g., via combining unit 110). In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Accordingly, applicant's argument is moot since it is AAPA, and not H'mimy, that is relied upon for teaching these claim limitations and these claim limitations are taught by AAPA as discussed above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of U.S. Patent No. 5,912,876 to H'mimy, further in view of U.S. Patent No. 5,235,612 to Stilwell et al.

Regarding claim 1, AAPA teaches a mobile station receiving method on a down channel in a CDMA cellular system (specification, page 1, lines 15-26) in which a base station modulates, by using orthogonal pseudo random codes, transmission signals towards a plurality of mobile stations (specification, page 1, line 22 to page 2, line 4), transmits the modulated signals synchronously, while the mobile stations receive the modulated signals distorted by a plurality of radio channels of which delay times are different (specification, page 2, lines 3-15) (e.g., see also, generally, specification, pages 1-4), however, may not specifically disclose frequency characteristics of an equalization filter are inverse to an estimation result.

H'mimy also teaches a CDMA system such as in AAPA, and further, specifically teaches the system is characterized in that a mobile station comprises an equalization filter (e.g., filter 95, see FIG. 1) and a transmission estimation unit (e.g., accumulator 90), wherein the transmission estimation unit (e.g., accumulator 90) outputs an estimation result (e.g., estimated frequency response, see col. 4, lines 18-41) of frequency characteristics of a transmission channel (e.g., channel 50) and sets up the frequency characteristics of the equalization filter (e.g., filter 95)

such that the frequency characteristics of the equalization filter are inverse to the estimation result (e.g., see col. 4, lines 22-34). Additionally, the teachings of H'mimy provide improved channel estimation by simplifying operation and resulting in instantaneous results (see col. 2, lines 5-49 and col. 4, lines 35-41). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the CDMA teachings of H'mimy to the CDMA system of AAPA in order to provide improved channel estimation by simplifying operation and resulting in instantaneous results. However, AAPA in view of H'mimy may not specifically disclose equalizing spread spectrum signals based on the frequency response of the plurality of radio channels to eliminate channel distortion.

Stilwell, like AAPA in view of H'mimy, teaches a method of CDMA wireless communication (e.g., see abstract), and further, specifically teaches equalizing spread spectrum signals (e.g., see col. 5, line 5 – col. 7, line 18 regarding spread spectrum signals and filtering) based on the frequency response of the plurality of radio channels (e.g., see col. 8, line 44 – col. 9, line 33, wherein the composite spread spectrum signal used with filtering is generated to comprise the sum of all spread spectrum signals in a frequency band from the transmission sites) to eliminate channel distortion (e.g., wherein interference is cancelled, see col. 5, lines 6-14 and col. 8, lines 33-35). Additionally, the teachings of Stilwell provide for the removal of spreading code interference and provide an increase in the number of users for each CDMA channel for greater system efficiency (e.g., see col. 8, lines 37-43; see also col. 5, lines 15-27). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the CDMA teachings of Stilwell to the CDMA system of AAPA in view of H'mimy in order to provide for the removal of spreading code interference and provide an increase in the number of

users for each CDMA channel for greater system efficiency (e.g., see Stilwell at col. 8, lines 37-43; see also col. 5, lines 15-27).

Regarding claim 5, AAPA in view of H'mimy teach the a communication system and a mobile station as discussed above regarding claim 1, and further, AAPA teaches an apparatus and method comprising the elements and respective steps of: a frequency conversion unit (e.g., frequency conversion unit 102 in prior art FIG. 5) for converting the modulation signals received by an antenna (e.g., antenna 101) into base band signals (e.g., see specification, page 2, lines 17-19), a channel estimation unit (e.g., detection unit 106) for detecting frequency characteristics of the radio channels on the basis of the modulated signals (e.g., see specification, page 2, line 19 to page 3, line 2), and a demodulation unit (e.g., 103-105 in conjunction with 107-109) for de-spreading and demodulating outputs (e.g., see specification page 2, line 23 to page 3, line 6). Further, as discussed above, H'mimy teaches an equalization filter unit (e.g., filter 95, see FIG. 1) of which frequency characteristics are inverse from that of the radio channels (e.g., see col. 4, lines 22-34), by using tap coefficients (e.g., select signals, see FIG. 2) from a channel estimation unit (e.g., ACC 80 in combination with 130 and 125). Additionally, as discussed above, the teachings of H'mimy provide improved channel estimation by simplifying operation and resulting in instantaneous results (see col. 2, lines 5-49 and col. 4, lines 35-41). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the CDMA teachings of H'mimy to the CDMA system of AAPA in order to provide improved channel estimation by simplifying operation and resulting in instantaneous results. However, AAPA in view of H'mimy may not specifically disclose equalizing spread spectrum signals

based on the frequency response of the plurality of radio channels to eliminate channel distortion.

Stilwell, like AAPA in view of H'mimy, teaches a method of CDMA wireless communication (e.g., see abstract), and further, specifically teaches equalizing spread spectrum signals (e.g., see col. 5, line 5 – col. 7, line 18 regarding spread spectrum signals and filtering) based on the frequency response of the plurality of radio channels (e.g., see col. 8, line 44 – col. 9, line 33, wherein the composite spread spectrum signal used with filtering is generated to comprise the sum of all spread spectrum signals in a frequency band from the transmission sites) to eliminate channel distortion (e.g., wherein interference is cancelled, see col. 5, lines 6-14 and col. 8, lines 33-35). Additionally, the teachings of Stilwell provide for the removal of spreading code interference and provide an increase in the number of users for each CDMA channel for greater system efficiency (e.g., see col. 8, lines 37-43; see also col. 5, lines 15-27). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the CDMA teachings of Stilwell to the CDMA system of AAPA in view of H'mimy in order to provide for the removal of spreading code interference and provide an increase in the number of users for each CDMA channel for greater system efficiency (e.g., see Stilwell at col. 8, lines 37-43; see also col. 5, lines 15-27).

7. Claims 3 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of H'mimy.

Regarding claims 3 and 6, AAPA in view of H'mimy teaches the mobile station discussed above regarding claim 1, and further, AAPA teaches demodulating independently each

of the modulated signals (e.g., via respective independent demodulation units 107-109) which pass through a plurality of the radio channels of which delay times are different, and combining the result (e.g., via combining unit 110). Still further, while AAPA may not specifically disclose an additional method of using a filter with frequency characteristics inverse to that of the radio channels, such a method is taught by H'mimy as discussed above regarding claim 1. That is, H'mimy teaches a mobile station comprises an equalization filter (e.g., filter 95, see FIG. 1) and a transmission estimation unit (e.g., accumulator 90), wherein the transmission estimation unit (e.g., accumulator 90) outputs an estimation result (e.g., estimated frequency response, see col. 4, lines 18-41) of frequency characteristics of a transmission channel (e.g., channel 50) and sets up the frequency characteristics of the equalization filter (e.g., filter 95) such that the frequency characteristics of the equalization filter are inverse to the estimation result (e.g., see col. 4, lines 22-34). Further, H'mimy teaches selecting an output with higher communication quality among other possible outputs by equalizing and demodulating steps (e.g., see col. 2, lines 19-49, col. 4, line 23 – col. 5, line 12, and FIGS. 1 and 2 regarding selection with respect to two methods following ACCs 80 and 90). Additionally, the teachings of H'mimy provide improved channel estimation by simplifying operation and resulting in instantaneous results (see col. 2, lines 5-49 and col. 4, lines 35-41). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the CDMA teachings of H'mimy to the CDMA system of AAPA in order to provide improved channel estimation by simplifying operation and resulting in instantaneous results.

Regarding claim 7, AAPA in view of H'mimy teach the a communication system and a mobile station as discussed above regarding claim 1, and further, AAPA teaches an apparatus

and method comprising the elements and respective steps of: a frequency conversion unit (e.g., frequency conversion unit 102 in prior art FIG. 5) for converting the modulation signals received by an antenna (e.g., antenna 101) into base band signals (e.g., see specification, page 2, lines 17-19), a channel estimation unit (e.g., detection unit 106) for detecting frequency characteristics of the radio channels on the basis of the modulated signals (e.g., see specification, page 2, line 19 to page 3, line 2), and a demodulation unit (e.g., 103-105 in conjunction with 107-109) for de-spreading and demodulating outputs (e.g., see specification page 2, line 23 to page 3, line 6). Further, as discussed above, H'mimy teaches an equalization filter unit (e.g., filter 95, see FIG. 1) of which frequency characteristics are inverse from that of the radio channels (e.g., see col. 4, lines 22-34), by using tap coefficients (e.g., select signals, see FIG. 2) from a channel estimation unit (e.g., ACC 80 in combination with 130 and 125). Additionally, as discussed above, the teachings of H'mimy provide improved channel estimation by simplifying operation and resulting in instantaneous results (see col. 2, lines 5-49 and col. 4, lines 35-41). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the CDMA teachings of H'mimy to the CDMA system of AAPA in order to provide improved channel estimation by simplifying operation and resulting in instantaneous results.

Regarding claim 8, AAPA teaches a mobile station receiving method on a down channel in a CDMA cellular system (specification, page 1, lines 15-26) in which a base station modulates, by using orthogonal pseudo random codes, transmission signals towards a plurality of mobile stations (specification, page 1, line 22 to page 2, line 4), transmits the modulated signals synchronously, while the mobile stations receive the modulated signals distorted by a plurality of radio channels of which delay times are different (specification, page 2, lines 3-15) (e.g., see

also, generally, specification, pages 1-4), which is characterized in that the mobile station comprises a first receiving unit (e.g., unit 102 in FIG. 5), a second receiving unit (e.g., unit 107) and a selection unit (e.g., unit 110), wherein the first receiving unit (e.g., unit 102) comprises a frequency conversion unit (e.g., frequency conversion unit 102) for converting the modulated signals received by an antenna into base band signals (specification, page 2, lines 17-19); and a demodulator (e.g., demodulation unit 107) for demodulating outputs of a unit of which inputs are base band signals (specification, page 2, line 17 to page 3, line 6). However, AAPA may not specifically disclose a channel estimation unit and a filter unit with frequency characteristics of an equalization filter are inverse to an estimation result.

H'mimy also teaches a CDMA system such as in AAPA, and further, specifically teaches the system is characterized in that a mobile station comprises a filter unit (e.g., filter 95, see FIG. 1) and a channel estimation unit (e.g., accumulator 90), wherein the channel estimation unit (e.g., accumulator 90) detects frequency characteristics of radio channels on the basis of modulated signals and outputs an estimation result (e.g., estimated frequency response, see col. 4, lines 18-41) of the frequency characteristics of a the radio channels (e.g., channel 50) and sets up the frequency characteristics of the filter unit (e.g., filter 95) such that the frequency characteristics of the filter are inverse to the estimation result (e.g., see col. 4, lines 22-34). Further, H'mimy teaches a second receiving unit comprises a combining unit for selecting an output with higher communication quality among other possible outputs by equalizing and demodulating steps (e.g., see col. 2, lines 19-49, col. 4, line 23 – col. 5, line 12, and FIGS. 1 and 2 regarding selection with respect to two methods following ACCs 80 and 90). Also, as discussed above, AAPA teaches demodulating independently each of the modulated signals (e.g., via respective independent

demodulation units 107-109) which pass through a plurality of the radio channels of which delay times are different, and combining the result (e.g., via combining unit 110). Additionally, the teachings of H'mimy provide improved channel estimation by simplifying operation and resulting in instantaneous results (see col. 2, lines 5-49 and col. 4, lines 35-41). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the CDMA teachings of H'mimy to the CDMA system of AAPA in order to provide improved channel estimation by simplifying operation and resulting in instantaneous results.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of H'mimy in view of Stilwell, further in view of prior art recited in U.S. Patent No. 6,307,879 to Moriyama.

Regarding claim 2, AAPA in view of H'mimy in view of Stilwell teach the mobile station discussed above regarding claim 1, respectively, however may not specifically describe the filtering that is utilized. Moriyama also teaches a mobile station in a CDMA system (e.g., see col. 18, lines 56-59) and further, specifically describes a filter which is well known in the art of CDMA systems (e.g., prior art FIG. 5), wherein the filter comprises: a plurality of delay circuits which are connected in series (e.g., delay circuits 16a, see FIG. 5 and col. 3, line 44 – col. 4, line 61); a plurality of multipliers (e.g., multipliers 16b) each of which multiples a prescribed weight coefficient (e.g., weight factor, see col. 3, lines 53-63) by the output from each delay circuit (e.g., delay circuits 16a); and an adder (e.g., adder 16c) for adding the outputs from said multipliers (e.g., multipliers 16b), wherein modulated signals are equalized adaptively (e.g., filtering is adaptive, see col. 3, lines 44-52) as the distortions of the radio channels changes. Also, this well

known filter (prior art FIG. 5) disclosed by Moriyama provides improved operation by minimizing error power (e.g., see col. 4, lines 62-63). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the well known filter embodiment of FIG. 5 in Moriyama to the filter of AAPA in view of H'mimy in view of Stilwell since such a teaching is well known in the art of filtering in a CDMA system and in order to provide improved operation by minimizing error power (e.g., see Moriyama at col. 4, lines 62-63).

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of H'mimy, further in view of prior art recited in U.S. Patent No. 6,307,879 to Moriyama.

Regarding claim 4, AAPA in view of H'mimy teach the mobile station discussed above regarding claim 3, respectively, however may not specifically describe the filtering that is utilized. Moriyama also teaches a mobile station in a CDMA system (e.g., see col. 18, lines 56-59) and further, specifically describes a filter which is well known in the art of CDMA systems (e.g., prior art FIG. 5), wherein the filter comprises: a plurality of delay circuits which are connected in series (e.g., delay circuits 16a, see FIG. 5 and col. 3, line 44 – col. 4, line 61); a plurality of multipliers (e.g., multipliers 16b) each of which multiples a prescribed weight coefficient (e.g., weight factor, see col. 3, lines 53-63) by the output from each delay circuit (e.g., delay circuits 16a); and an adder (e.g., adder 16c) for adding the outputs from said multipliers (e.g., multipliers 16b), wherein modulated signals are equalized adaptively (e.g., filtering is adaptive, see col. 3, lines 44-52) as the distortions of the radio channels changes. Also, this well known filter (prior art FIG. 5) disclosed by Moriyama provides improved operation by

minimizing error power (e.g., see col. 4, lines 62-63). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the well known filter embodiment of FIG. 5 in Moriyama to the filter of AAPA in view of H'mimy since such a teaching is well known in the art of filtering in a CDMA system and in order to provide improved operation by minimizing error power (e.g., see Moriyama at col. 4, lines 62-63).

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of H'mimy in view of Stilwell, further in view of U.S. Patent No. 6,347,391 to Uesugi et al.

Regarding claim 9, AAPA in view of H'mimy in view of Stilwell teach the apparatus and method discussed above regarding claim 1, respectively, however, may not specifically require performing equalization before decoding or demodulating. Uesugi, like AAPA and H'mimy and Stilwell, also teaches an apparatus and method for CDMA communications, and specifically, discloses that performing equalization before decoding or demodulating is well known in the art (e.g., see FIG. 1 comprising equalizer 6 receiving a signal and performing equalization including compensating for distortion before sending the signal to a demodulator or decoder 7, whereafter decoded data 8 is received, see col. 1, lines 23-40). Further, Uesugi teaches the embodiment of FIG. 1 is a conventional structure well known in the art (e.g., see col. 1, lines 23-25, and see FIG. 1 comprising the PRIOR ART designation) which specifically is well known for overcoming the problem of multipath fading (e.g., see col. 1, lines 10-23). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the ordered equalization with decoding or demodulating as disclosed by Uesugi to be well known in the art to the apparatus and method of AAPA in view of H'mimy in view of Stilwell since such a teaching is both well

known in the art and since such an implementation further overcomes the problem of multipath fading (e.g., see Uesugi at col. 1, lines 10-23).

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of H'mimy, further in view of U.S. Patent No. 6,347,391 to Uesugi et al.

Regarding claim 10, AAPA in view of H'mimy teach the apparatus and method discussed above regarding claim 3, respectively, however, may not specifically require performing equalization before decoding or demodulating. Uesugi, like AAPA and H'mimy, also teaches an apparatus and method for CDMA communications, and specifically, discloses that performing equalization before decoding or demodulating is well known in the art (e.g., see FIG. 1 · comprising equalizer 6 receiving a signal and performing equalization including compensating for distortion before sending the signal to a demodulator or decoder 7, whereafter decoded data 8 is received, see col. 1, lines 23-40). Further, Uesugi teaches the embodiment of FIG. 1 is a conventional structure well known in the art (e.g., see col. 1, lines 23-25, and see FIG. 1 comprising the PRIOR ART designation) which specifically is well known for overcoming the problem of multipath fading (e.g., see col. 1, lines 10-23). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the ordered equalization with decoding or demodulating as disclosed by Uesugi to be well known in the art to the apparatus and method of AAPA in view of H'mimy since such a teaching is both well known in the art and since such an implementation further overcomes the problem of multipath fading (e.g., see Uesugi at col. 1, lines 10-23).

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin M. Philpott whose telephone number is 571.272.3162. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571.272.3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Justin M. Philpott

CHI PHAM
SUPERVISORY PATENT EXAMINER 10/12/06